

California Department of Fish and Game  
722 Capital Avenue  
Sacramento, California

MARINE RESOURCES OPERATIONS  
Cruise Report

Cruise: Cruise 5 of the N. B. SCOFIELD for 1957. 57-S-5.  
Sailed: November 9, 1957 from Los Angeles Harbor.  
Returned: November 23, 1957 from Los Angeles Harbor.

Locality: The waters off central California from Point Reyes south to Point Conception.

Objectives:

1. To assess the relative abundance of sardines, Pacific mackerel, jack mackerel and anchovies using 1500-watt light above the surface of the water and a blanket net as the standard sampling tool.
2. To fish with a lampara net on schools of fish observed from the air in an effort to assist the aerial observers in identifying schools of fish and to explore the technique as a possible sampling method.
3. To deliver live sardines to Steinhart Aquarium, San Francisco.

Results: The occurrence of young sardines in Monterey Bay was one of the most significant facts observed during cruise 57-S-5, the last of the 1957 survey cruises. This was the first indication of '0' year class fish in the waters north of Point Buchon since the current series of pelagic fish surveys began in 1949. The finding and collection of these fish, size range 99 to 230 mm (3.9 to 9.1 inches), was consistent with and amplified reports received earlier in the year; eggs and larvae had been reported by Hopkins Marine Station personnel and in mid-summer commercial fishermen reported small sardines mixed with anchovies, while mixed schools were sighted on several occasions during aerial surveys by Department personnel.

A small sample of adult sardines was also taken in San Luis Obispo Bay along with a mixed school of fish, composed predominantly of jack smelt, a few mackerel and anchovies.

This is the first year in recent history in which Pacific mackerel were taken in waters north of Point Conception. However, the one sample of 2 fish, collected in San Simeon Bay, does not indicate a great abundance of Pacific mackerel in waters off Central California.

Twenty-six one hour night light stations were occupied in the survey area. Pelagic fish species were taken in three general localities, principally in bays; Monterey, San Simeon, and San Luis Obispo. The remainder of the stations (23) were either blank or contained such species as jack smelt, sauries, or squid.

A major portion of the 240 miles scouted between stations appeared blank. A few unknown schools of fish were sighted in the vicinity of Point Arguello and Cape San Martin. Schools of very small anchovies, no more than several weeks old, were observed in San Simeon Bay and off Point Sal.

A fairly heavy concentration of large jelly fish, Chrysaora gilberti, was observed on two adjacent stations in the area between the town of Santa Cruz and Ano Nuevo Point to the northwest. The area of concentration appeared to cover a 10 to 15 mile stretch of coastal water, which is in sharp contrast to the aerial observations of a week previous and to last year's findings when a very heavy and more extensive, 50 to 60 mile, concentration was noted. Also, pointing up the marked changes found this year over last was the absence of tunicates and salps, none was seen in 1957, whereas during the November 1956 survey large concentrations of Pyrosoma and salps were frequently seen along the route.

The surface water temperature ranged from 12.8°C (50.0°F) off Point Sur to 15.2°C (59.4°F) just south of Point Arguello. However, the major portion of the surveyed water mass was relatively uniform, varying only 0.8°C (range 13.0° to 13.8°C). There was nothing unusual about the water temperatures where sardines were found and taken, Monterey Bay registered 14.3° and San Luis Obispo 13.1°C. Station routine included bathythermograph casts to allowable depths and 10 meter reversing thermometer casts.

#### Aerial Scouting - Lampara Net Fishing:

Working in San Luis Obispo Bay, five sets of a 100 fathom lampara net were made during daylight hours under the direction of an observer flying in the State Cessna 170. Four sets were made around schools of fish visible from the air but not from the boats. These schools were traced on a small recording fathometer prior to setting the net in an attempt to measure their mass. In each instance, the school was seen to escape the net despite the fact that it was completely surrounded. Each haul yielded only a scoop or two of fish; the shallow water set contained primarily anchovies and white croakers while the deep water sets caught jack smelt and sardines. Because the schools of fish were seen to escape the net, it was felt that the catch was of scattered fish and not a portion of the school. Therefore the last set was deliberately made on a blank area; no school of fish was visible from the air and no traces were obtained on the fathometer. The resulting catch of this set

was one large jack smelt. Thus, it appeared that the first 4 hauls did catch a portion of the encircled school.

Approximately 100 scoops of large adult sardines were picked up in southern California and delivered to Steinhart Aquarium.

Scientific Personnel:

George Reiner, Biologist in charge, November 9 to 16th.  
Leo Pinkas, Biologist in charge, November 17 to 23rd.  
Bruce Dunow, Fish and Game Assistant, entire cruise.

CRUISE 5755

125° N. B. SCOFIELD

Nov. 9 - 23 1957

Each mark represents one sample

- Sardines
- ▲ Pacific Mackerel
- Jack Mackerel
- ⊗ Anchovy

125°

120°

35°

35°

